CRN-Workshop Report

Reichenau/Rax, Austria, 2003

Civil and Military Defence Planning and Scenario Techniques

Directorate General for Security Policy
at the Austrian Ministry of Defence

in cooperation with
the Austrian National Defence Academy

supported by
the Comprehensive Risk Analysis
and Management Network (CRN)

ETH
Eidgenössische Technische Hochschule Zürich
Swiss Federal Institute of Technology Zurich

The Center for Security Studies at the ETH Zurich

The Center for Security Studies at the ETH Zurich (Swiss Federal Institute of Technology) was founded in 1986 and specializes in the fields of international relations and security policy. The Center for Security Studies is a member of the Center for Comparative and International Studies (CIS), which is a joint initiative between the ETH Zurich and the University of Zurich that specializes in the fields of comparative politics and international relations.

The Comprehensive Risk Analysis and Management Network (CRN)

The Comprehensive Risk Analysis and Management Network (CRN) is an Internet and workshop initiative for international dialog on national-level security risks and vulnerabilities, critical infrastructure protection (CIP) and emergency preparedness. Originally launched as a Swiss-Swedish Initiative, the partner network today consists of partners from four different countries: the Swedish Emergency Management Agency (SEMA), Sweden; the Directorate General for Security Policy at the Federal Ministry of Defence, Austria; the Directorate for Civil Protection and Emergency Planning (DSB), Norway; the Federal Office for National Economic Supply (NES), Federal Departement of Economic Affairs, Switzerland and the Swiss Federal Department of Defense, Civil Protection and Sports (DDPS), Switzerland.

As a complementary service to the International Relations and Security Network (ISN), the CRN is coordinated and developed by the Center for Security Studies at the Swiss Federal Institute of Technology (ETH) Zurich, Switzerland. (www.isn.ethz.ch/crn)

This report is also available on the Internet: www.isn.ethz.ch/crn

Author: Isabelle Wigert

Postal address:
Directorate General for Security Policy
at the Austrian Ministry of Defence
Stiftgasse 2a
A-1070 Vienna
AUSTRIA
Tel. +43 1 5200 27001
Fax +43 1 5200 17068
www.bmlv.gv.at
info.sipol@bmlv.gv.at

Center for Security Studies at the ETH Zurich
ETH Zentrum SEI
CH-8092 Zuerich
SWITZERLAND
Tel. +41 1 632 40 25
Fax +41 1 632 19 41
www.isn.ethz.ch/crn
crn@sipo.gess.ethz.ch

Table of Contents

1 Background and Aim of the Workshop

The workshop on "Civil and Military Defence Planning and Scenario Techniques" was organized under the umbrella of the Comprehensive Risk Analysis and Management Network (CRN) initiative, which organizes, among other things, at least two events per year as part of its expert workshop cycle (http://www.isn.ethz.ch/crn). The CRN target group consists of security policy analysts, researchers, and practitioners, particularly in the public sector. The CRN works on the premise that national security can only be achieved through international co-operation. The CRN's goal is to provide an international partner network to exchange knowledge on risks and risks analysis methodology, and to share and review national experiences.

The 5th CRN Expert Workshop took place at Chateau Rothschild in Reichenau/Rax, Austria from 18 to 21 September 2003 and was organized by the Directorate General for Security Policy at the Austrian Ministry of Defence in co-operation with the Austrian National Defence Academy, and was supported by ETH Zurich.

The workshop's topic was *"Civil and Military Defence Planning and Scenario Techniques"*. The goal was to get a better understanding of the nature of scenario technique and of what it can achieve in a security policy context. During the workshop, the use and role of scenarios in civil and military defence planning were examined and future research areas mapped. The workshop gave an overview of different scenario methods and other strategic planning tools. The operational planning perspective and the strategic planning perspective for identifying security policy trends were surveyed.

Experts from research institutes and national governments from Austria, the Netherlands, Norway, Sweden, and Switzerland attended the event in Reichenau and shared their knowledge.

For information about CRN at the Center for Security Studies, ETH Zurich
http://www.isn.ethz.ch/crn

For information about the Austrian Directorate General for Security Policy and the National Defence Academy
http://www.bmlv.gv.at

For information about the Norwegian Directorate for Civil Protection and Emergency Planning (DSB)
http://www.dsb.no

For information about the Swedish Emergency Management Agency (SEMA)
http://www.krisberedskapsmyndigheten.se/english/index.jsp

2 Content Outline: Scenario Technique and why it is a Topic for the CRN

2.1 What are Scenarios?

Why is the CRN interested in the scenario technique, and what role can this tool play for CRN's work?

Until 1970, futures work and planning were based mainly on traditional extrapolative methods, i.e. extrapolating from the past into the future. But with the onset of significant social, economic, political, and other changes, the scenario technique and other futures methods had to be adapted. Given the greater uncertainty and the sheer pace of change, new future techniques had to be developed. Scenario methods were included among these techniques. The RAND Corporation had already used these techniques in the field of defence and security during the 1950s.[1] Later, multinational companies such as Royal Dutch Shell adopted these techniques. Scenario methods and processes are now among the most frequently used futures methods.

The term *scenario* is borrowed from the theatre world, where it refers to the sketch of the scenes. A scenario in the policy analysis world can be a preferred future, an undesirable future, or just a possible future – as long as it is plausible. A scenario can therefore be described as a *coherent* picture of a *plausible* future. Scenarios deal with uncertainty about what the future could bring: The aim is not to foresee the future, but to show how different interpretations of the driving forces of change can lead to different possible futures.

There exist various definitions of scenarios – below some examples:

- "The term 'scenariowriting' denotes a technique which attempts to set up a logical sequence of events in order to show how, starting from the present or any given situation, a future state may evolve step by step." (Jantsch, Erich. Technological Forecasting in Perspective. A framework for technological forecasting, its techniques and organization. OECD Study, Paris 1967, p. 180.).

- "A scenario is a quantitative or qualitative picture of a given organization or group, developed within the framework of a set of specified assumptions. This 'picture' can be developed in many different ways, by modelling, simulation, or a variety of less quantitative techniques." (Mac Nulty, Christine A. Ralph, "Scenario Development for Corporate Planning", in: Futures. The Journal of Forecasting and Planning. Guildford 1977, p. 129.).

- "Scenarios are coherent, credible stories about alternative futures. The process of creating scenarios places a strong emphasis on the joint definition of a 'problematique' and on a synthesis of ideas, rather than just extended and deeper analysis of a single viewpoint. Because they involve using multiple perspectives to explore problems, scenarios can help us to create shared understandings of possible developments, options and actions." (Davis, Ged. Scenarios as a Tool for the 21th Century. Shell International Ltd. 2002, p. 1.).

[1] http://www.rand.org/randeurope/fields/scenarios.html.

2.2 How Scenarios are developed

There are different approaches to the development of a scenario. The most common one is a systematic approach with several steps. These steps, usually about eight to ten, can be roughly distinguished in the following phases: analysis phase, forecasting phase, synthesis phase, and evaluation phase.[2]

Step 1: The setting/focus question: defining the problem

- Identify the central strategic concerns, the key issues of the users of the scenario, and the external factors that affect the functioning of the policy to be studied.

Step 2: Key factors affecting the question

- Key factors are the events and trends in the micro-environment that will determine success and failure in the domain of the focal question.

Step 3: Identifying and analyzing the driving forces

- The driving forces are the environmental trends that drive the key factors and events. They are the causes of the causes. The driving forces that are likely to have the most important influences on the central concerns of the future have to be identified. Where can the drivers be reasonably predicted, what is known and unknown, what are the relevant trends and trend breaks?

Step 4: Assessment of the importance/impact and the uncertainty of the drivers

- Ranking the driving forces is a difficult process of selection. The goal in ranking is to find the factors of *highest impact* on the functioning of the policy area or system, and those of *highest uncertainty* with respect to the direction in which they would develop, and to their consequences on the policy area or system.

Step 5: Scenario logic

- The scenario logic is meant to push and provoke the thinking of the planning group and their organization. It constructs the main themes or assumptions around which the scenarios are to be built. Only the most powerful driving forces are taken into consideration. It is important to end up with a few scenarios, the variations among which make a difference to decision-makers.

Step 6: Scenario development

- Scenarios are complete stories, often presented in the form of narratives that present a plausible sequence of events. Many of the important driving forces that did not make it to the scenario logic may be played out as themes or plots in each of the individual scenarios. Scenarios should be provocative with memorable imagery, names, and places. Material for the scenario comes from research, interviews, and expressed opinion, as well as from various other sources. The challenge is to keep each story consistent, each with a strong self-identity and very different from the next.

---

[2] See for example: UK Cabinet Office, Performance and Innovation Unit. A Futurist's Toolbox. Methodologies in Futures Work, 2001: http://www.number-10.gov.uk/su/toolbox.pdf. Or: Reibnitz, Ute Hélène von: Szenario-Technik. Instrumente für die unternehmerische und persönliche Erfolgsplanung. Wiesbaden 1991.

Step 7: Implications and impact analyses

- The worlds created by the scenarios now form the vehicles for strategic conversation. They are like wind tunnels to test answers and develop strategic options to the focus question. The impact of the scenarios and the key concerns with which the process began are now being analyzed. In most cases, common strategic options will emerge, meaning action steps that make sense under any scenario.

Step 8: Policy implications and early indications

- The value of the scenario does not end once the focus question has been answered. Now the researcher may analyze the implications for policy and identify indicators that will help monitor changes as they occur. It is possible to observe early-warning signs, environmental variables, or other events that suggest a particular scenario is unfolding. When a consistent pattern of indicators forms over time, confidence develops that a particular scenario is playing out and that the other predicted events will also come to pass – time to launch the relevant strategic options.

A good scenario is

- Creative: unlike or different from the present
- Consistent: plausible
- Concise: logical and profiled
- Anchored: relevant, very clear on purpose and assumptions

2.3 Application: Where scenarios are used

Given the assumption that the future is uncertain and unpredictable, scenarios are applied to an increasing number of areas, creating visions of different futures. Scenarios are best suited for a changing environment. Scenarios can be used for both forecasting and backcasting. When scenarios are used for forecasting, they form the contextual world in which a policy has to function and give an idea of what the future in a particular policy area could bring.
Scenarios can, for example, be used to:

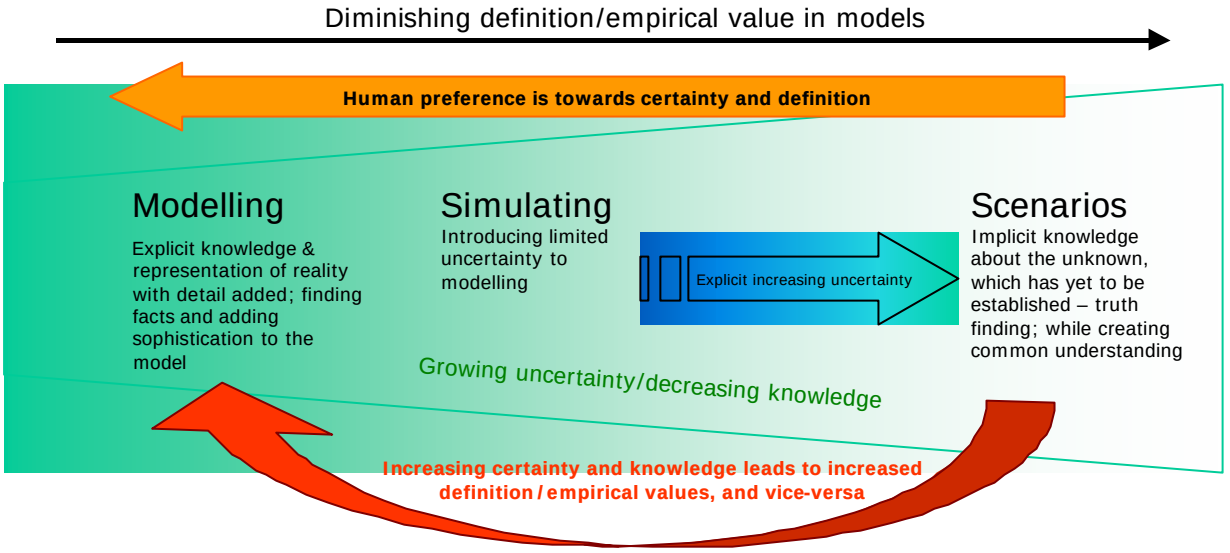
- Analyze how current problems could develop in the future;
- Analyze the extent in which new problems could arise, and to analyze why these developments might occur;
- Consider policy options to deal with the future;
- Analyze the possible future effects of the policies proposed and to analyze their robustness in different possible futures.

2.4 Modeling and Simulation

A *Model* can be used in designing scenarios to clarify the relations between different factors under consideration. The assumption is that one needs a ‘model’ of the world before one can write detailed scenarios. Modeling involves the use of mathematical relationships to describe a system and is in many senses the same as *Quantitative Forecasting*. Experts need to have a thorough understanding of the system, its factors, and interdependencies. A model is a usually a simplified representation of reality constructed to explore certain aspects or properties.

In systems analysis, a model usually aspires to represent the real world. A model can either be formal, such as a mathematical expression, a diagram, or a table; or judgmental, as formed by the assessments contained in the mind of experts.

In *Simulation*, scenarios can be used as an input to define the context in which a simulation takes place. There are three basic types of simulations: Live Simulations (involving real people operating real systems); Virtual Simulations (involving real people operating simulated systems), and Constructive Models or Simulations (involving simulated people operating simulated systems).



Picture 1: Taken from Andreas Ligtvoet's Presentation "*Why Scenarios*".[3]

This picture shows that Modeling contains the greatest levels of certainty and explicit knowledge. Further to the right on this chart, the degree of certainty diminishes, until reaching scenarios for which virtually no certainty, empirical values, or explicit knowledge are available. Scenarios contain implicit knowledge regarding "what is not known". Therefore, scenarios aim to bridge the gap between the implicit knowledge about the unknown and the explicit knowledge of the empirical values included in modeling and simulation.[4]

[3] See also: O'Brien, Kevin et al. Work Package 3. Using Scenarios to Support Critical Infrastructure Analysis and Assessment. RAND Europe 2003, p. 28.
[4] Ibid.

3 Workshop Presentations

The CRN Workshop had two major sessions, focusing on the operational planning perspective on the first day, and focusing on the strategic planning perspective on the second day.

Andreas Ligtvoet from RAND Europe, Leiden, opened the first day with a keynote speech on *"Why Scenarios"*. Mr. Ligtvoet addressed the question of why (policy) decision-makers should use scenarios that are framed within the field of futures studies. His main answer was that this method helps to be better prepared and to avoid big surprises. Moreover, scenarios can legitimize action, demonstrate consequences, encourage thinking about alternatives, provide insight into uncertainties, and explore strategies. Therefore, scenarios are a tool for uncertain situations, and they enable analyses that can deal with the uncertainty.

Mr. Ligtvoet then explained that quantitative forecasts, scenarios, Delphi studies, or foresight are all methods that - in one way or another - try to 'probe' the future and demonstrated that there are different types of scenarios that are useful for different purposes. "All models are wrong, but some of them are useful", he said.

He also addressed some of the limitations and criticisms that scenarios endure and warned against falling into the trap of believing in one's own scenarios. Yet, he concluded that given the possibility to combine scenarios with other types of probing the future, there will be a continued use for this 40-year old method, as has been shown in several examples of work within and outside RAND Europe.

A broad overview and *"Introduction to Simulation and Modeling"* was given by **Else Helen Feet** from the Norwegian Defence Research Establishment. She defined a *model* as a simplified mathematical representation of a *system*, and a system as a collection of entities, e.g., people or machines that act and interact together toward the accomplishment of some logical end. In practice, what is meant by "the system" depends on the objective of a particular study. A model can be used for representing knowledge about the system, and for communicating this insight to others.

However, Ms Feet stressed that the main purpose of modeling will usually be to analyze the system performance under alternative conditions (scenarios). In most realistic cases, the model will be too complex to allow analytic solutions. In these cases, one may use *simulation* as a way of analyzing the model.

She explained that a simulation model is a computer program that represents the entities and interactions of the model, and calculates its development forward in time. If the model includes random events, the simulation model will typically be run many times in order to produce statistically significant results. Designing good models is challenging if one wants to represent the most important aspects of the system without wasting time and energy on irrelevant details. To accomplish this, one must focus on the purpose of the model.

Ms Feed recommended that the model be tailored to the specific measure of effectiveness in question, and advised against trying to build a universal model. In order to assure the usefulness of a model, one must emphasize *reliability* (verification of the computer program), *validity* (is the model an accurate representation of the system?), *credibility* (the client's acceptance of the validity of the model), and *proper analysis of the output* (through sensitivity analysis of the assumptions). Ideally, one should apply the model to actual cases, and compare its predictions with actual data, but this is not always possible in military applications.

Dr. Tom Ritchey from the Swedish Defence Research Agency, Stockholm, talked about "*Scenario Development and Strategy Management with Morphological Analysis*". He explained that Morphological Analysis is a non-quantified modeling method for structuring and analyzing complex socio-technical problems. It can be used for developing scenarios, for defining and analyzing complex policy spaces, or for assessing the relationship between means and ends in strategic planning. Morphological Analysis has been developed in order to facilitate group work and co-operation both between different scientific disciplines and between actors in different sectors and at different societal levels.

Dr. Ritchey also presented a number of methodological problems in modeling complex socio-technical systems – especially concerning scenario development and strategy management. He also mentioned three case studies concerning the development of computer-supported scenario and strategy laboratories:

- Nuclear Facilities and Sabotage: Using Morphological Analysis as a Scenario and Strategy Development Laboratory (for the Swedish Nuclear Power Inspectorate – SKI)
- Tactical Scenarios and System Alternatives for Ground-Based Targets (for the Army Tactical Command – ATK)
- Using Morphological Analysis to Evaluate Preparedness for Terrorist Threats involving Chemical Agents (for the National Rescue Board – SRV).

Mag. Predrag Jurekovic and **Capt. Robert Romano** from the Austrian National Defence Academy in Vienna presented their work "*Think Tools as an Operational Planning Tool – Challenges in the Western Balkans*". In their presentation, the scenario and strategy software "Think Tools" was used for the security political assessment of challenges, risks, and chances in the western Balkans, which is still one of the most important zones of interest for the European Union, according to the authors.

Their presentation started with the description of the actor constellation that showed their mutual influence in the region. One result was a map of active and passive behavior, which helps to identify the regional key actors.

Their analysis continued with the evaluation of how western goals and means are accepted by the key actors in the region. This leads to the so called "options development", which together with the tool "risk assessment" critically examines current strategies for stabilizing the western Balkans.

Dr. Ulrike Kastrup from the Center for Security Studies at the Swiss Federal Institute of Technology (ETH) in Zurich talked about "*Scenario and Expert Pool Risikoanalyse Schweiz*". Dr. Kastrup emphasized that in a security policy analysis that is oriented towards the future, we can no longer investigate individual threats in isolation. Rather, we need to aim for the whole picture, that is, risk must be understood as a holistic phenomenon. National critical infrastructures like nuclear power plants, hospitals, information and telecommunication networks, and transportation infrastructures are complex, interdependent, and internationally integrated systems. Thus, relatively small strikes against, for example, a transportation infrastructure can cause a chain reaction that is difficult to estimate and predict. The dynamics of this chain reaction have not been sufficiently considered in the past. However, they can no longer be neglected, as the interdependencies between the various areas are constantly increasing, both in size and importance, Dr. Kastrup explained.

In this context, the Center for Security Studies set up the "*Scenario and Expert Pool Risikoanalyse Schweiz*" in 2002 to provide a platform for risk analysis and expertise in this field. In national expert workshops, critical risk clusters were identified and then used to demonstrate and evaluate the full complexities of the consequences of particular events – consequences that would likely be overlooked if a catastrophic event were investigated independently. The ultimate aim of this comprehensive cluster analysis was to identify and dynamically assess critical scenario clusters as a tool for preventative crisis management planning and as a basis for a comprehensive security policy.

The second keynote speech was presented by **Prof. Bengt Sundelius** from the Swedish National Defence College in Stockholm on "*Scenarios, case-studies, and strategic decision-making*". Prof. Sundelius observed that decision-makers tend to have a tunnel vision regarding security challenges in international civil emergency planning and crisis management. He distinguished between "*actor-focused threats*", such as armed attacks by another state or by individual terrorists, and "*structural threats*", such as the collapse of neighboring systems or severe domestic disturbances. The resulting problem is how to prepare for this broad range of contingencies, and in this context, Prof. Sundelius considers scenarios to be a helpful tool for broadening minds and thinking.

Prof. Sundelius depicted the following trends in future decision-making: trans-boundary and real-time flows; technological complexity; second- and third-order consequences (e.g., after 9/11 somebody or something will be blamed), mediatization (the media); public service versus private sector; multilevel and cross-sector institution-building. Especially under time pressure, decision-making can become very difficult. In such situations, scenarios and scenario-based simulation are important for training decision-makers, according to Prof. Sundelius.

From the Swiss General Staff, **Mr. Daniel Maurer** talked about "*Scenario techniques and the long-term development of ESDP*". Over the last few years, Switzerland has lacked a conceptual basis for assessing the impact of the European Union's Security and Defence Policy (ESDP) on Swiss security policy and the Swiss Armed Forces. Therefore, the Force Development Division in the Swiss Armed Forces Planning Staff decided, two years ago, to fill this gap through focused research based on the scenario technique. This research has produced five scenarios related to the long-term development of ESDP. The aims of this study were to provide an analytical basis that supports the planning of the armed forces and gives political and military decision-makers more awareness of pending changes.

In accordance with the topic of the workshop, Mr. Maurer's presentation focused on the methodological aspects of his study. In particular, he showed that the scenario process consists of the following eight steps: analysis of tasks, analysis of influences, trend projections, grouping of alternatives, interpretation of scenarios, analysis of consequences, analysis of interfering occurrences, and transfer of scenarios.

After a short description of the five ESDP scenarios (Trilateral Cooperation, Pax Americana, Europower, Reviving National Sovereignty, and Unstable Periphery) Mr. Maurer concluded his presentation with some general reflections.

Finally, **Mr. Fredrik Hassel** from the Swedish Emergency Management Agency SEMA addressed *"The Changing Security Policy Landscape – the Swedish Context"*. Mr. Hassel's presentation focused on the big security policy picture, arguing that one must have a broader context in mind when discussing how to handle the practical work on a national level.

Mr. Hassel observed that the decisions made in the European capitals mostly relate to the old security policy structure, to the different countries' national interests, and to these interests in relation to the US. In his view, a factor that could create a more unified policy in Europe would be a massive terror attack against a European country and especially an EU member. In risk analysis, one has to develop the crisis management capabilities to deal with different natural disasters; these hazards may not be so spectacular, but are more likely to happen than a full-scale terror attack, according to Hassel. It is getting more difficult to predict new security policy challenges and to create efficient systems to handle crises when they occur. This is a matter of risk management, Hassel said.

4 Working Groups Results

In the afternoon of the second workshop day, the workshop participants were split into four groups. Each group had to deal with the four questions. After two hours each team presented its results in the plenum. The outcome can be summarized as follows:

Question 1: *Think about which civil and military defence planning application areas are best suited for scenario techniques. Can you state some examples, e.g. from your own experience?*

The workshop participants deemed the use of scenario technique especially well qualified for the private industry (e.g. Shell) on the one hand, and the defence sector on the other hand.
The participants considered scenario technique to be especially applicable and suitable for the following risks:

- Unpredictable risks/threats or unprecedented events (lack of understanding);
- Non-quantifiable and interdisciplinary risks;
- Risks with low or unknown probability; and
- Risks with high impact (and low probability), so-called 'wild cards'.

It follows that the less we know, the more useful scenario techniques are.

Question 2: *Discuss the different concepts and methods of scenario techniques and their advantages and disadvantages. Think about possible criteria for their application (e.g., availability and quality of information; time; cost, etc.).*

The workshop participants agreed that scenario technique depends heavily on experts' knowledge. In addition, "rules" on how to develop the scenario are needed from the beginning; one should define the "freedom of thinking". It was suggested that different concepts and methods of scenario techniques (e.g., a morphological approach, the use of the Think Tools software approach, or a war-gaming approach) could be combined in a suite.

The following were seen as advantages of the scenario technique:

- A wide range of applicability (at the operational, tactical, or strategic levels);
- Everybody can use their intuition;
- Scenarios can provide overview/guidelines and food for further thought; and
- They can therefore help decision-makers.

The following disadvantages were identified:

- Scenarios are time consuming;
- Scenarios are expert-dependent; and
- Scenarios are transparent, but have a "fuzzy logic" (do not always fully meet academic standards)

Question 3: *How can the outcome of a scenario process be translated into concrete decisions?*

To answer this question, the workshop participants had to ask themselves: Who wants to know and will listen to the results of a scenario? And: Who decides (in politics) and why, based on what information?

The workshop participants agreed that scenarios have to demonstrate the options open to the policy-makers in a clear and easily understandable way; otherwise policy-makers probably won't deal with the matter. A scenario is a tool for highlighting a situation and for supporting a decision-making process, but it is not a "miracle tool". It is also important that the right scenario level (e.g., political/strategic, operational, tactical, or technical level) be chosen and communicated to the decision-makers, otherwise the scenario can create misunderstandings.

Think-tanks such as RAND, IISS, or the Washington Institute for Near East Policy were considered as good ways to present scenario results to decision-makers. There is a trust-relationship between the scenario-makers and the decision-makers, one of the participants observed. In addition, one should be aware that there are numerous steps between a scenario and an actual plan for decision-makers.

The best results can probably be achieved when policy-makers are involved in the process of developing scenarios, one participant suggested. Yet, the problem remains that policy-makers don't trust their results (although they are fascinated by them). It is possible that scenarios can initiate change in the way governments and politicians, respectively, conceptualize their forces: that could maybe lead to more preemptive measures.

Question 4: *What do you consider being trends in trend-analysis? Where can you make out topics in this field that need further research in the future?*

One participant stated that scenarios in general had become more important after 11 September. Workshop participants identified the following trends in trend analysis:

- Vulnerability Analysis;
- Qualitative Analysis complementing Quantitative Analysis;
- Structure Analysis and Actor Analysis;
- The combination of empirical data and results of horizon scanning;
- The combination of Simulation and Modeling (or any other kind of analysis); and finally
- Learning from history.

The following research challenges and unresolved questions in the field of scenario technique were identified, which are especially relevant for mathematical models:

- How to deal with and model wild cards, highly unlikely events, or unimaginable events.
- How to model interdependencies, especially second- and third-order consequences.
- How to model discontinuities or breaks.

Furthermore, it was stressed that a common semantic is required when developing or using scenarios.

5 Workshop Summary

This CRN Workshop on 'Civil and Military Defence Planning and Scenario Techniques' has highlighted various aspects of scenario techniques, simulation, and modeling as strategic planning tools and as methods to analyze the future. The workshop has shown that scenario technique is useful for uncovering current and future problems, for developing political strategies, or for assessing the effects of policy instruments. Yet, getting accurate forecast results requires a 'problem definition' context.

Scenario planning does not replace other forms of strategic planning, but it does provide an excellent way to manage uncertainty and to provide stability to other plans and techniques. Integration of scenario-based planning with other forms of strategic planning is the topic of many advanced workshops.

The CRN workshop has shown that in a scenario process, decision-makers have to invent and then consider several varied and equally plausible futures and unexpected situations. Ideally, scenarios can serve as a tool for organizing decision-makers' perceptions. In the end, the point is to make strategic decisions that will be sound for all plausible futures. A good scenario is both plausible and surprising in the sense that it can break old stereotypes. Those who make and implement decisions should be involved in the creation of scenarios.

As stated above, the workshop participants discussed various aspects of scenario technique. In summary, the following strengths and weaknesses of this futures method were mentioned:

Strengths of scenario technique

The scenario development process provides a context for thinking clearly about the complex array of factors that affect any strategic decision. It also gives the persons involved in a scenario a common language and understanding of a problem. Scenario methods and processes can therefore be used as:

- Strategy evaluation or checklist against general planning: Is there something we might have forgotten?
- A way of sparking debate – whether internal or external to the organization – but it is important to clarify the purposes and assumptions behind the scenarios.
- A tool for creating a general consensus. This may be useful when an entity wants to start an internal discussion that could lead to a reformulation of strategy.
- The explorative scenario method is most commonly used as an "early-warning" tool aimed at pinpointing *if* and *when* specific policies or overall strategies need to be changed.
- A good training tool.

Weaknesses of scenario technique

- It can be difficult to translate the outcome of a scenario process into concrete decisions.
- The method is based, for the most part, on qualitative information, which, by its very nature, is imprecise.
- The scenario technique draws up a "possibility space" that offers the decision-maker a choice of futures. Decision-makers who are used to a solid piece of advice or direction will not always appreciate this.
- Developing good scenarios is time consuming and heavily expert-dependent.

6 Workshop Program

Thursday, 18 September 2003

Arrival of participants. Shuttle from Vienna Airport to Chateau Rothschild at Reichenau.

19:30 **Evening reception**
Welcome address by the Director-General for Security Policy at the Austrian Ministry of Defence, **Hon.-Prof. DDr. Erich Reiter**, Austria

Friday, 19 September 2003

07:00-08:20 **Breakfast**

08:30-08:40 **Opening of the Workshop**
Official opening of the workshop by **BG Gustav E. Gustenau**, Deputy Director-General for Security Policy, Austria

08:40-08:50 **Administrative Information**
Workshop chairman, **Capt. Ernst M Felberbauer**, Austria

08:50-09:00 **CRN Introduction**
Dr. Jan Metzger, Switzerland

09:00-09:30 **Keynote Speech**
"Why Scenarios?"
Andreas Ligtvoet, RAND Europe

09:30-10:00 ***Coffee Break***

10:00-10:30 **Introduction to Simulation and Modeling**
Else Helene Feet, FFI (Norwegian Defence Research Establishment), Norway

10:30-12:30 **Session 1: Simulation and Modeling (Operational Planning Perspective)**
Moderator: **Jan Lundberg**
Presentations (40 min presentations)

- Sweden: *"Scenario Development and Strategy Management with Morphological Analysis"* **Dr. Tom Ritchey**, FOI, Stockholm
- Think Tools:

Austria : *"Think Tools as an Operational Planning Tool– Challenges in the Western Balkans*" **Mag. Predrag Jurekovic and Capt. Robert Romano**, National Defence Academy, Austria

- Switzerland : *"Scenario and Expert Pool Risikoanalyse Schweiz"* **Dr. Ulrike Kastrup**, Center for Security Studies, ETH Zurich.

12:30-14:00 ***Lunch***

14:00-14:30 **Keynote Speech**

"Scenarios, case studies, and strategic decision-making"
Prof. Bengt Sundelius, SEMA, Sweden

14:30-15:00 **Discussion**
Moderator: **Jan Lundberg**

15:00-16:30 **Working Groups**
4 groups
Moderator: **Jan Lundberg**

16:30-17:00 ***Coffee Break***

17:00-17:30 **Working Groups Presentations (10 min each)**
Rapporteurs

17:30-18:00 **Round-up session**
Workshop chairman, **Jan Lundberg**

19:00 **Informal Dinner Reception**

Saturday, 20 September 2003

07:00- 08:30 ***Breakfast***

08:30-10:00 **Session 2: Identifying Security Policy Trends (Strategic Planning Perspective)**
Moderator: **Roger Steen**, Norway
Presentations (30 min presentations)
- Sweden: "Aquarium – Case-driven Scenarios" **Anders Christensson**, Swedish National Defence College, Department of War Studies
- Switzerland: *"Scenario techniques and the long-term development of ESDP"* **Daniel Maurer**, Force Development Division, Planning Staff, Swiss General Staff
- Sweden: *"The Changing Security Policy Landscape – the Swedish Context"* **Fredrik Hassel**, Head of Executive Staff, SEMA

10:00-10:30 ***Coffee Break***

10:30-11:30 **Discussion on Identifying Security Policy Trends**
Moderator: **Roger Steen**, Norway

11:30-11:45 **Final Remarks**
Dr. Peter Stern, Dr. Jan Metzger

11:45-12:00 **Round-up session - what next? End of workshop**
Workshop chairman, **Capt. Ernst Felberbauer**, Austria

12:00-13:30 ***Lunch***

13:30 Departure for Graz by Coach. Guided tour of the main sights of Graz – Cultural Capital of Europe 2003

7 Workshop Participants

Country	Name	Address
Switzerland	Dr. Jan Metzger	Center for Security Studies ETH Zentrum / SEI F 22 CH-8092 Zürich Tel: +41 1 632 0837 Fax: +41 1 632 1941 Mobile: +41 79 647 63 18 metzger@sipo.gess.ethz.ch
Switzerland	Dr. Ulrike Kastrup	Center for Security Studies ETH Zentrum/ WEC E 23 CH-8092 Zürich Tel: +41 1 632 0407 Fax: +41 1 632 1372 kastrup@sipo.gess.ethz.ch
Switzerland	Ms. Myriam Dunn	Center for Security Studies ETH Zentrum/ WEC E 23 CH-8092 Zürich Tel: +41 1 632 0755 Fax: +41 1 632 1372 dunn@sipo.gess.ethz.ch
Switzerland	Ms. Isabelle Wigert	Center for Security Studies ETH Zentrum/ WEC E 23 CH-8092 Zürich Tel: +41 1 632 4482 Fax: +41 1 632 1372 wigert@sipo.gess.ethz.ch
Switzerland	Dr Doron Zimmermann	Center for Security Studies ETH Zentrum/ WEC E 25 CH-8092 Zürich Tel: +41 1 632 0758 Fax: +41 1 632 1372 zimmermann@sipo.gess.ethz.ch
Switzerland	Dr. Michael Guery	Center for Security Studies ETH Zentrum/ WEC E 24 CH-8092 Zürich Tel. +41 1 632 6349 Fax: +41 1 632 1372 guery@sipo.gess.ethz.ch
Switzerland	Mr. Gérald Vernez	Swiss General Staff, Information Operations Papiermühlestrasse 20 CH-3003 Bern Tel: +41 31 324 5467 Fax: +41 31 324 4812 gerald.vernez@gst.admin.ch

Switzerland	Mr. Daniel Maurer	Swiss General Staff, Force Development Division Schermenwaldstrasse 13 CH-3063 Ittigen Tel: +41 31 325 07 78 Fax: +41 31 323 94 17 daniel.maurer@gst.admin.ch
Switzerland	Mr. Francois Maridor	Directorate for Security Policy Effingerstrasse 77 CH-3003 Bern Switzerland Tel: +41 31 324 40 10 Fax: +41 31 324 40 44 francois.maridor@dsp.admin.ch
Switzerland	Mr. Jürg Balmer	Federal Office for Civil Protection Monbijoustrasse 51A CH-3003 Bern Tel: +41 31 322 51 76 Fax: +41 31 324 87 89 juerg.balmer@babs.admin.ch
The Netherlands	Mr. Andreas Ligtvoet	RAND Europe Newtonweg 1 NL-2333 CP Leiden Tel: +31 71 524 5183 Fax: +31 71 524 5191 ligtvoet@rand.org
Norway	Mr. Roger Steen	Directorate for Civil Protection and Emergency Planning P.O. Box 2014 N-3103 Tønsberg Tel: +47 33 41 28 87 Fax: +47 22 38 26 75 roger.steen@dsb.dep.no
Norway	Mr. Kjetil Sørli	Directorate for Civil Protection and Emergency Planning P.O. Box 2014 N-3103 Tønsberg Tel: +47 33 41 27 32 kjetil.sorli@dsb.dep.no
Norway	Ms. Else Helene Feet	FFI (Norwegian Defence Research Establishment) P.O. Box 25 N-2027 Kjeller Phone: (+47) 63 80 77 47/ 918 53 118 Else-Helene.Feet@ffi.no

Austria	Prof. DDr. Erich Reiter	Directorate General for Security Policy at the Austrian Ministry of Defence AG Stiftgasse 2a 1070 Vienna Tel: +43 1 5200 27001 Fax: +43 1 5200 17068 manuela.messerlehner@bmlv.gv.at
Austria	BG Mag. Gustav E. Gustenau	Directorate General for Security Policy at the Austrian Ministry of Defence AG Stiftgasse 2a 1070 Vienna Tel: +43 1 5200 27005 Fax: +43 1 5200 17112 gustav.gustenau@bmlv.gv.at
Austria	Mag. Andreas Wannemacher	Directorate General for Security Policy at the Austrian Ministry of Defence AG Stiftgasse 2a 1070 Vienna Tel: +43 1 5200 27060 Fax: +43 1 5200 17112 andreas.wannemacher@bmlv.gv.at
Austria	Capt Mag. Ernst M. Felberbauer	Bureau for Security Policy at the Austrian Ministry of Defence AG Stiftgasse 2a 1070 Vienna Tel: +43 1 5200 27030 Fax: +43 1 5200 17112 ernst.felberbauer@bmlv.gv.at
Austria	Mjr Dr. Johann Frank	Bureau for Security Policy at the Austrian Ministry of Defence AG Stiftgasse 2a 1070 Vienna Tel: +43 1 5200 27050 Fax: +43 1 5200 17112 johann.frank@bmlv.gv.at
Austria	Capt Mag. Christian Eder	Bureau for Security Policy at the Austrian Ministry of Defence AG Stiftgasse 2a 1070 Vienna Tel: +43 1 5200 27051 Fax: +43 1 5200 17112 christian.eder@bmlv.gv.at
Austria	Mag. Caroline Stampfer	Bureau for Security Policy at the Austrian Ministry of Defence AG Stiftgasse 2a 1070 Vienna Tel: +43 1 5200 27053 Fax: +43 1 5200 17112 caroline.stampfer@bmlv.gv.at

Austria	Dr. Thomas Pankratz	Bureau for Security Policy at the Austrian Ministry of Defence AG Stiftgasse 2a 1070 Vienna Tel: +43 1 5200 27053 Fax: +43 1 5200 17112 thomas.pankratz@bmlv.gv.at
Austria	Col Mag. Axel Wohlgemuth	National Defence Academy Institute for Peace Support and Conflict Management AG Stiftgasse 2a 1070 Vienna Tel: +43 1 5200 40700 Fax: +43 1 5200 17262 karl.wohlgemuth@bmlv.gv.at
Austria	Mag. Predrag Jurekovic	National Defence Academy Institute for Peace Support and Conflict Management AG Stiftgasse 2a 1070 Vienna Tel: +43 1 5200 40710 Fax: +43 1 5200 17262 Predrag.jurekovic@bmlv.gv.at
Austria	Mjr Robert Romano	National Defence Academy Institute for Peace Support and Conflict Management AG Stiftgasse 2a 1070 Vienna Tel: +43 1 5200 40711 Fax: +43 1 5200 17262 Robert.romano@bmlv.gv.at

Sweden	Dr. Tom Ritchey	Swedish Defence Research Agency (FOI) SE-172 90 Stockholm Tel: +46 8 55 50 38 57 Fax: +46 8 55 50 39 21 ritchey@foi.se
Sweden	Mr. Anders Christensson	Swedish National Defence College Department of Warstudies, Research and Development Section Box 27 805 115 93 Stockholm Fax :+46 8 788 94 54 GSM: +46 70 628 9678 URL: http://www.militaryscience.org s.anders.christensson@fhs.mil.se
Sweden	Mr. Markus Förberg	National Center for Crisis Management Research and Training (CRISMART)/Swedish National Defence College Box 27 805 SE – 115 93 Stockholm Phone: +46 8 788 94 67 Fax: + 46 788 94 57 markus.forberg@fhs.mil.se
Sweden	Ms. Sara Larsson	National Center for Crisis Management Research and Training (CRISMART)/Swedish National Defence College Box 27 805 SE – 115 93 Stockholm Phone: +46 8 788 94 34 Fax: + 46 788 94 57 sara.larsson@fhs.mil.se
Sweden	Prof. Bengt Sundelius	National Defence College Political Science P.O. Box 27805 SE – 11593 Stockholm Tel: +46 8 788 98 19 Fax: +46 8 788 99 52 bengt.sundelius@fhs.mil.se
Sweden	Mr. Martin Arkel	Swedish Emergency Management Agency (SEMA) P.O. Box 599 SE – 10131 Stockholm Tel: +46 730261234 martin.arkel@krisberedskapsmyndigheten.se
Sweden	Mr. Oskar Hansson	Swedish Emergency Management Agency (SEMA) P.O. Box 599 SE – 10131 Stockholm

		Tel: +46 (0) 8 593 712 57 Mobile: +46 (0) 73 026 12 57 Fax: +46 (0) 8 593 710 01 oskar.hansson@krisberedskapsmyndigheten.se
Sweden	Mr. Fredrik Hassel	Swedish Emergency Management Agency (SEMA) P.O. Box 599 SE – 10131 Stockholm Tel: +46 8 59 37 1051 Fax: +46 8 59 37 10 01 fredrik.hassel@krisberedskapsmyndigheten.se
Sweden	Mr. Jan Lundberg	Swedish Emergency Management Agency (SEMA) P.O. Box 599 SE – 10131 Stockholm Tel: +46 8 59 37 12 51 Mobile: +46 730 26 12 51 Fax: +46 8 59 37 10 01 jan.lundberg@krisberedskapsmyndigheten.se
Sweden	Mr. Rikard Olsson	Swedish Emergency Management Agency (SEMA) P.O. Box 599 SE – 10131 Stockholm Tel: +46 8 59 37 12 14 Fax: +46 8 59 37 10 01 rikard.olsson@krisberedskapsmyndigheten.se
Sweden	Dr. Peter Stern	Swedish Emergency Management Agency (SEMA) P.O. Box 599 SE – 10131 Stockholm Tel: +46 8 593 71000 Fax: +46 8 593 71001 peter.stern@krisberedskapsmyndigheten.se